

## REMARKS

All pending rejections other than the obviousness rejection of claim 6 over Ross in view of Sato and the obviousness rejection of claim 12 over Ross alone are moot in light of this Amendment. The rejections of claims 6 and 12 are respectfully traversed.

Please note that claims 1 and 7 now include the limitation of claim 6, which was the same as that of claim 12.

The Examiner acknowledges that Ross does not disclose an information storage medium or system wherein the composite nickel coating has a surface roughness (Ra) less than about 10 Å. To fill this gap in Ross, the Examiner states that “surface roughness is a result effective parameter that affects stiction. As such, it would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal Ra value for the NiP layer taught by Ross et al.” (see page 5, lines 13-16, and page 6, lines 7-9 of the Action).

MPEP 2144.05 II states the following:

### **II. OPTIMIZATION OF RANGES**

#### **A. Optimization Within Prior Art Conditions or Through Routine Experimentation**

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be *prima facie* obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of

10%.); >see also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); < \*\* *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

#### **B. Only Result-Effective Variables Can Be Optimized**

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

Thus, MPEP 2144.05 II states that in order to establish a *prima facie* case of obviousness arguing that something is simply a result effective variable, the first requirement is that “*the general conditions of a claim are disclosed in the prior art*” as stated in *In re Aller*.

The Examiner arrives at a conclusion of *prima facie* case of obviousness, *without providing any factual basis* for the conclusion that “surface roughness is a result effective parameter that affects stiction.” (Quoted above; citation omitted.) Applicants respectfully submit that the Examiner has “pigeonholed” the doctrine of optimization of ranges in making the

rejection of claims 6 and 12 (now incorporated in claims 1 and 7) without consideration for the ultimate legal issue—Would the invention of these claims have been obvious over the cited art? The CCPA in *In re Yates*, 663 F.2d 1054, 211 USPQ 1149 (CCPA 1981), explained its decision of *In re Aller* in 663 F.2d at 1056 as follows:

The Solicitor, relying upon *In re Aller*, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955), argues that it is “not unobvious to discover optimum or workable ranges by routine experimentation.” In many instances, this may be true. The problem, however, with such “rules of patentability” (and the ever-lengthening list of exceptions which they engender) is that they tend to becloud the ultimate legal issue—obviousness—and exalt the formal exercise of squeezing new factual situations into preestablished pigeonholes. Additionally, the emphasis upon routine experimentation is contrary to the last sentence of section 103.

Applicants respectfully submit that the first substantial question is whether *the general conditions of a claim are disclosed in the prior art*. The Examiner has cited column 1, lines 8-23, column 2, lines 18-50, column 5, lines 7-10, column 7, lines 7-11, of Ross.

As is apparent from the cited portions of Ross, *none* of the cited portions relate to a “composite nickel coating ha[ving] a surface roughness (Ra) less than about 10 Å” as recited in claims 1 and 7. Instead, Ross discloses a method for making a magnetic disk by the steps of depositing a texture layer on a glass substrate, said texture layer comprising a nickel-niobium alloy; *laser texturing* said texture layer; and depositing a magnetic layer on said texture layer. Persons of ordinary skill in this art would recognize that laser texturing results in the formation of *bumps* and *holes* as shown in Figures 2A and 2B of Ross itself. Laser texturing would *not* necessarily result in a smooth surface having a surface roughness (Ra) less than about 10 Å, and Ross does *not* disclose *the general conditions of the claimed subject matter of claims 1 and 7*.

Even assuming that Ross had recognized the “surface roughness (Ra)” as a result-effective variable, the inquiry to establish a *prima facie* case of obviousness does not end without undertaking an inquiry into whether the claimed invention is a “[d]iscovery of optimum values of a result effective variable [that] only involves routine skill in the art.” See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), which is cited in MPEP 2144.05 II.

In *In re Boesch* Applicants sought review of decision which sustained examiner’s rejection, under 35 USC 103, of Applicants’ patent claims. The court held that Applicants’ claims for nickel base alloys were properly rejected as obvious to one within skill of the art. Composition requirements of Applicants’ claims, and requirements found in earlier patents, *overlapped*. Prior art suggested the kind of experimentation necessary to achieve the claimed composition, including the proportional balancing described by Applicants’ equation. Furthermore, the court held that discovery of an optimum value of result effective variable in a known process was ordinarily within the skill of the art. The court also held that a *prima facie* case of obviousness could be rebutted where the results of optimizing a variable were unexpectedly good.

The court in *In re Boesch* affirmed that Applicants’ claims for nickel base alloys were properly rejected as obvious to one within skill of the art. The court’s reasons for affirming the obviousness rejection was that the composition requirements of Applicants’ claims and requirements found in earlier patents *overlapped* and prior art suggested experimentation necessary to achieve the claimed composition, including proportional balancing described by Applicants’ equation.

The court in *In re Woodruff*, 919 F.2d 1575; 16 USPQ2d 1934 (Fed. Cir. 1990), cited *In re Boesch* to maintain an obviousness rejection when a patented storage method and applicant’s

storage method were identical, with the exception of carbon monoxide concentrations. Patented method taught a carbon monoxide concentration of about 1-5%. Applicant's method required a concentration of more than 5%. The court in *In re Woodruff* determined that "patentability [cannot] be found in the difference in carbon monoxide ranges recited in the claims [as compared to the ranges disclosed in the prior art]." *Id.*

In short, in order to rely on *In re Boesch*, the prior should disclose a range for the surface roughness (Ra). In this case, Ross discloses *no* range for the surface roughness (Ra). But, even if it did, the court has clarified that there should be an *overlap* of the claimed ranges and the ranges disclosed in the prior art in order to establish a *prima facie* case of obviousness arguing that the discovery of optimum values of a result effective variable only involves routine skill in the art as in *In re Boesch*.

The Examiner recognizes that Ross does not disclose the surface roughness (Ra). Thus, the Examiner states that "it would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal Ra value for the NiP layer taught by Ross et al." [Quoted above; citation omitted.]

The Examiner's alleged motivation that "it would have been obvious to one of ordinary skill in the art at the time of invention" to arrive at "the optimal Ra value for the NiP layer taught by Ross" such that the optimal value of Ra is within the claimed value of Ra is such a general motivation that it does not respond to the evidentiary burden which the Examiner must satisfy to make out a *prima facie* case of obviousness. Such a motivation that "it would have been obvious ... to determine the optimal Ra value" is so broad that it would apply to *all* inventions having a claimed range. Thus, such a motivation does not answer the central question of why, out of all the references disclosing a recording disk having a substrate with a sputtered layer of NiP and an

electrolessly deposited layer of NiP thereon—and there must be thousands of such references—would a person of ordinary skill in the art choose Ross as the disclosure to look to, and furthermore “determine the optimal Ra value for the NiP layer taught by Ross” would be within the claimed range. The answer is apparent: Without Appellant’s disclosure and claims as a roadmap, *no* person of ordinary skill in this art would have chosen Ross’s laser textured media having a substrate with a sputtered layer of NiP and an electrolessly deposited layer of NiP thereon. This is classic, impermissible hindsight. Furthermore, the Examiner has provided no logical or technical reasoning *why* the “optimal Ra value for the NiP layer taught by Ross” would have been within the claimed range if a person of ordinary skill in the art would have determined the Ra value of the NiP layer of Ross.

The Examiner’s selected motivation is so general in the context of the relevant art that it constitutes no more than the reference to a general level of skill in the art found deficient in *In re Lee*, 277 F.3d, 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). As emphasized by the court in *In re Lee*, 61 USPQ2d at 1433, the Examiner *must* present specific evidence of motivation, not the generalized evidence relied on in the Action:

When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) (“the central question is whether there is reason to combine [the] references,” a question of fact drawing on the *Graham* factors).

The burden imposed by *Lee* is not an impossible burden, as explained by the court in *In re Thrift*, 298 F.3d 1357, 1364-65, 63 USPQ2d 2002 (Fed. Cir. 2002), with respect to the references relied on by the Board in that case:

In the present case, the reasoning articulated by the Board is exactly the type of reasoning required by *In re Lee*. Both the examiner and the Board clearly identified a motivation to combine the references, stating that the skilled artisan would have “found it obvious to incorporate the speech input and speech recognition techniques taught by Schmandt into the expert system of Stefanopoulos in order to reduce the need for less user friendly manual keyboard and mouse click inputs.” Decision on Appeal at 5; accord Aug. 7, 1996 Office Action at 3. The motivation to combine the references is present in the text of each reference. The Schmandt reference itself verifies this motivation, stating that “allowing users to remain focused on the screen and keyboard, instead of fumbling for the mouse, would be beneficial in a workstation environment.” Schmandt at 51. Stefanopoulos itself, while not expressly disclosing the use of speech recognition, sets forth the motivation to combine the references, stating that “there are alternative means to select the buttons, including . . . voice-activated transfer means, which may be readily adapted for use with the present invention by those skilled in the art.” ’237 patent, col. 4, ll. 34-38.

The reliance in the Action, on the fact that it would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal Ra value for the NiP layer taught by Ross such that the Ra value of Ross’ NiP layer is within the claimed range comes nowhere close to the analysis required by *Lee* and approved in *Thrift*.

Based on *Lee* and *Thrift*, the appropriate question to ask again at this point in the analysis is: why, based on Ross, would a person of ordinary skill in the art have had *any* reason to look for “the optimal Ra value,” and even if one would do so, whether one would arrive at the claimed Ra values? There is only one reasonable answer: impermissible hindsight reliance on Appellant’s disclosure and claims as a roadmap to choose Ross.<sup>1</sup> This failure to present evidence of motivation requires that the rejection be withdrawn.

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<sup>1</sup> Applicants recognize that an Examiner cannot search prior art to use in examining a patent application without reading the application and its claims first. That much “hindsight” is permissible and expected in the examination process. However, that is as far as hindsight in the examination process can

In light of this Amendment, a Notice of Allowance is respectfully solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to

**Deposit Account No. 03-1952** referencing **146712011100**.

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By: \_\_\_\_\_

Respectfully submitted,

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go. Once the Examiner finds prior art that appears to be relevant based on the limited amount of hindsight that is permissible, *Lee* and *Thrift* require the Examiner to point to *evidence* within the prior art references themselves as to why persons of ordinary skill in the art would have been motivated to combine the disclosures so as to arrive at the claimed invention. Applicants' position rests on the Examiner's failure to produce and rely on objective evidence of motivation in the prior art itself.